MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

"Atopy," "Allergy" and "Anaphylaxis."—To explain different symptomatologies and laboratory findings, various classifications of human hypersusceptibility have been suggested, implying different etiologies and different logical therapies. One classification, for example, assumes that "true anaphylaxis" differs from certain "hereditary allergies" in that "true anaphylaxis" is always serologically transferable.[1] That this is a purely arbitrary criterion having no relationship to specific etiology or logical therapy is implied in Julianelle's [2] currently reported reproduction at will of either the transferable or non-transferable type of local anaphylaxis by varying the site of injection of the same sensitizin. In his hands intravenous injection of heat-killed pneumococci into normal rabbits, for example, leads to the development of a specific cutaneous hypersusceptibility which is serologically transferable. But the same vaccine injected intracutaneously gives in addition to this generalized allergy a specific ocular hypersensitiveness not transferable. This ocular hypersensitiveness might be classed by certain clinicians as an "hereditary allergy."

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Public Health Aspects—Epidemic Influenza. Influenza represents to the health official just an ordinary loose medical term. In other words, the clinical diagnosis and the subsequent reports when reported may be summed up usually as a senseless definition of a pathologic X. In unusual times, however, or in times of increased mortality from respiratory infections beyond seasonal expectancies or at the time of the prevalence of great pandemics, influenza as a term becomes cloaked with immense importance from a clinical, pathologic and bacteriologic standpoint, and infinitely significant from a public health standpoint. The disease occurs in serious and furious epidemics and in great pandemics as an acute, highly communicable, febrile disease. As such it represents a high mortality rate on the whole. One should be very familiar with the 1918 outbreak in which it is estimated that over 200,000,000 cases and 10,000,000 deaths occurred in a period of twelve months, throughout the world. In the United States alone, there occurred 20,000,000 cases and 450,000 deaths. Influenza pandemics were not unknown in ancient medical history, for Willis and Sydenham described the first outbreak in 1510. In fact, eighty outbreaks have been recorded since 1173. Such pandemics create public health situations that even today rapidly become chaotic as to acceptable control measures or investigative procedures. Furthermore, the rapidity of spread and the rapidity of subsidence and the undoubted occurrence of interepidemic types makes the investigative problem a complicated, necessarily hurried and expensive one. Moreover, what relationship exists between pandemic and interepidemic influenza is most obscure. This obscurity extends likewise to the relationship of type causative strains of bacteria or viruses at both periods. Suffice to say that there is no unanimity of opinion and no light sufficiently clear, no matter how extensive or timely the investigation, or careful the investigator, has been thrown upon the origin of the virus or the possible modification or attenuation. It is an attractive hypothesis to assume, in order of importance, that the virus is widely distributed; that individual, and even racial susceptibility, plays an important rôle; and that the virulence of pandemic strains subside for years or become innocuous. Microbic or viric dissociation from a virulent to a nonvirulent status has been suggested as a possible explanation to certain vagaries in the epidemiology of communicable diseases, particularly that of epidemic cerebrospinal fever, but at present this is not quite susceptible of proof. The facility and frequence of the occurrence of influenza is, however, very manifest, as is its dual epidemiologic rôle of pandemic and interepidemics.

Since 1918 the public health official has only been concerned with interepidemic influenza. Apparently, this type of the disease may be considered a respiratory infection rapidly diffusing through and involving whole communities or occurring in sharply defined outbreaks in schools, colleges, institutions, etc.

Clinical identification of influenza is obviously difficult but not unattainable. Conversely, microbic or viric identification is at present impossible. It is, therefore, on certain epidemiologic characteristics that identification can be based with any degree of certainty. The epidemiologic features en masse may be briefly stated to be its close relation of the curve of influenza to that of pneumonia; its high morbidity; its rapid dissemination over wide areas; its generally characteristic racial and age incidence and its dislocation of ordinary age distribution mortality of respiratory diseases with increase in young adults; its great explosiveness (the peak of the curve being reached in two

1 Karsner, H. T. Anaphylaxis and Anaphylactoid Reactions. The Newer Knowledge of Bacteriology and Immunology, Chap. 83, p. 967, 1928. University of Chicago Press.

2 Julianelle, L. A. Reaction of Rabbits to Intracutaneous Injections of Pneumococci and Their Products, J. Exper. Med., 51, 643, April 1930.

or three weeks or an incidence curve of not more than four to eight weeks); its high dispersiveness (many widely scattered cities reaching the peak of the curve about the same time, for no disease spreads so rapidly in so short a time) and its recurrences.

The lack of progress in control measures, the lack of knowledge as to methods of spread and the lack of information as to a microbic or viric factor, need not serve as a deterrent of discussion. In 1918, when influenza swept the world in a vast pandemic, 230,845 cases were reported in California. The years 1920, 1922, and 1928, could be considered interepidemic, for in California there was reported, approximately, an average number for each year and over 160,000 cases for these periods. Compare this with such nonepidemic years as 1921, 1924 and 1930, when approximately 1800 cases were reported on an average and over 5443 cases for these periods. Naturally predictions for the future trend of influenza for California or the world is fraught with statistical difficulties, but the health official may well approach the problem and carefully watch the statistical records in order to give warning of any trend to epidemic proportions. Definite conclusions, however, appear to be unwarranted. There seems to be no doubt that a wave of respiratory diseases, many cases of which have been rightfully or wrongfully diagnosed as influenza, has recently swept over parts of the eastern section of the United States. New York City reported sixty-eight cases for the week ending January 3, 1931, and 1140 for the week ending January 24. New Jersey, Maryland, North Carolina, and South Carolina reported similar increases. California only reported 159 cases for the first two weeks in January. During the week ending January 31, 1931, approximately 13,000 cases of influenza were reported in the United States, two-thirds of which were in the South Atlantic States, and 60 per cent in Maryland, North Carolina, and South Carolina. In Europe, Poland reported increased prevalence in November 1930, and Germany and France in December 1930. Likewise, did Jugo-Slavia, Denmark, Switzerland, and Spain. The disease was evidently mild, and clinical benignity the rule. England and Wales reported that from 107 towns in December the general mortality was 12.8 per 1000, which increased to 17.2 per 1000 in the week ending January 17, 1931.

Having so lightly disposed of 1930 and 1931, let us consider 1928 and 1929. Any doubt as to the reality of an epidemic of influenza can be dispelled by a survey of the mortality statistics. Up to January 5, 1929, 26,000 deaths occurred in the United States which were attributed to this epidemic, and this is a conservative estimate. This increased mortality was definitely on the decline in January 1929, especially in the Pacific and Mountain States. This epidemic, as well as that of 1926, apparently started on the Pacific Coast.

The origin of epidemics of influenza is particularly shrouded in obscurity—indeed, if a single starting point does exist. One need only recall the history of the 1918 outbreak to bring to mind that there was reported present in the army camps of Great Britain and Continental Europe in 1916-1917, a purulent type of bronchitis with the so-called heliotrophic hue or cyanosis. The disease was then not regarded as contagious, but was, perhaps, the precursor of the great pandemnic of our time. In fact, in the spring and summer of 1918 western Europe presented the occurrence of a disease which was probably the immediate forerunner of the pandemic and now called the first epidemic wave. Moreover, the observations, at autopsy, of LeCount, in Chicago in April 1918, and the explosive type of outbreaks at Camp Funston and Camp Oglethorpe in March, and particularly the reports of Kerr and his associates at Camp Lewis in April, indicated the probable presence of epidemic influenza in both the United States and Europe in early spring, at least in April. It appears, therefore, plain that in wide areas of the world, in 1918, outbreaks were occurring and original foci or transference from one country to another or one continent to another cannot be traced with any degree of plausibility. Two epidemiologic facts stand out prominently. That the first wave was relatively trivial and that the second wave was more explosive, more dangerous, more dispersive, more incapacitative, more depressive of mind, and reaching the crest of the wave in October and November. The epidemics which show all such features, especially the world-wide prevalence, are somewhat rare. Minor epidemics or recurrences at frequent intervals are of practically the same epidemiologic characteristics, but presenting less severe clinical types and, therefore, less effect on the general mortality. It would appear that since 1918 distinct outbreaks have occurred, particularly in 1920, 1923, 1926, and 1929, with certain other minor affairs, that are true epidemic influenza of modified virulence and intensity. The assurance of increased mortality from respiratory disease over the expectancy for these periods which, incidentally or otherwise, have occurred in triplet waves with the decided statistical mortality superiority for 1920 and 1929 may be sufficient ground for further assuming that a maximum respiratory death rate may appear in 1932. The tendency of epidemic diseases, however, is to fluctuate unseemingly, but usually maintaining a fixed seasonal basis. Epidemic influenza, however, stands alone, as it has spread at irregular intervals over wide areas, affecting large proportions of the population and presumably disregarding climatic and seasonal conditions. The accumulation of population susceptibles is a doubtful factor since, ordinarily, individual immunity is considerably transient.

It is not wise to assume the mantle of pessimism about any epidemic disease, but of all such diseases influenza has its unique universality; its rapidity of incidence; its extraordinary extent over land and sea; its occurrence in opposite seasons no matter the weather; its effect on all

classes of people; its varying clinical intensity; its apparent extension to animals, as for instance swine, and its recurrences at more or less stated intervals. Notwithstanding all of these, there should be continued, unremittingly, the collection and collation of data, especially clinical, of any visitation of the disease in order to deduce certain principles respecting the mode of propagation and the exciting factor and the measures to be adopted for control. To scientific medicine and public health this disease offers a most intriguing mystery to be solved.

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Allergic Manifestations in Superficial Fungus Infections.—The rapid spread of epidermophytosis during the past few years makes this disease a problem of primary importance not only to dermatologists, but to the medical profession as a whole, as well as to public health officers, school nurses, and directors of physical education.

We have become fairly familiar with the clinical picture of what the advertising artists are pleased to call "athlete's foot": the white, sodden macerated condition between the toes and in more active cases, areas of scaling and vesiculation on the soles and about the toes. Material removed from these lesions, either scales or the excised tops of vesicles, when examined microscopically after preparing with 40 per cent potassium hydroxid, usually shows large numbers of fungus mycelia, most commonly the *Epidermophyton Kaufman-Wolf*, although other organisms have been reported. The fungi can also be easily cultivated on Sabouraud's medium.

Frequently similar lesions occur on the hands either in the form of areas of scaling or of large, grouped vesicles. The lesions on the hands usually appear later than those of the feet and are practically always sterile on culture and negative for fungi on microscopic examination. A number of investigators have verified this observation, and Peck [1] has recently summarized and amplified this work in a very admirable contribution in which he shows conclusively that such lesions on the hands represent an allergic reaction to the infection on the feet, as verified by the presence of a positive intracutaneous reaction to trichophytin, an extract made from a culture of the fungus. He adds twenty-three new cases to a previous series of twenty-four reported by Jadassohn and himself, making a total of forty-seven patients presenting epidermophytosis of the feet, all with positive microscopic and cultural findings and positive trichophytin intracutaneous tests, who at the same time had lesions on the hands of an eczematoid or dyshidrotic nature which, with one exception, were negative microscopically and culturally. The lesions are designated as epidermophytids. It is thought that they are due to the hematogenous transportation of fungi or their toxins from the original focus on the feet, and are due to the development of an allergic state.

Peck reproduced the disease experimentally in a volunteer by inoculating a culture of *Epidermophyton Kaufman-Wolf* between the toes. Preceding the inoculation the trichophytin reaction was negative. Three days after inoculation without trauma, infection had taken place, as revealed by the clinical appearance and by a positive microscopic examination. The trichophytin reaction became positive thirteen days after inoculation, and epidermophytids began to develop on the hands about a week later. The lesions on the hands were sterile.

One very practical point is brought out by these observations, namely, that patients presenting eczematoid eruptions of the hands should be examined for fungus infections of the feet. Many of Peck's patients were unaware of foot infections, yet treatment directed solely toward eradicating the infection of the feet caused the lesions of the hands to disappear. Since it is also known, however, that primary fungus infections do occasionally occur on the hands, it is obviously desirable that suspected lesions should be examined microscopically before strong antiparasitic remedies are applied.

It should be an occasion for rejoicing that at least one group of stubborn and recurrent eczemas of the hands has been transferred from the incurable to the curable column.

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[1] Samuel M. Peck, Epidermophytosis of the Feet and Epidermophytids of the Hands—Clinical, Histologic, Cultural, and Experimental Studies. Arch. Derm. and Syphil., 22:40, July 1930.

Deaths From Acute Poisoning.—An analysis of 440 deaths from acute poisoning among Metropolitan Industrial policyholders discloses that more than one-quarter (115) resulted either from the mistaking of poisonous drugs for medicines or from overdoses of medicines containing poisons. Among the actual poisons which caused these 115 deaths, bichlorid of mercury leads the list with 22; overdoses of either allonal, luminal, or veronal proved fatal in 18 instances; arsenic caused twelve deaths; lysol, 11; and carbolic acid, 6. In twenty-eight cases, various other poisons were named and in six the name of the poisonous substance was not specified.

Ingestion of wood or denatured alcohol, taken either as a substitute for alcoholic beverages or mistaken for alcoholic beverages, caused 118 deaths, or more than one-quarter of the cases studied.

Young children are more frequent victims of accidental poisoning than are persons at any other age. There were, for example, 104 deaths of young children in this group of cases, in most of which the death resulted from the carelessness of parents in leaving pills or other poisonous agents within reach. Strychnin takes a heavier toll of child life than does any other poison, with kerosene, lye, oil of wintergreen, arsenic, and phosphorous figuring more or less prominently. Based on the results of this study, we would stress the dangers which arise from leaving poisons within the reach of young children. While most of these deaths were probably due to sheer carelessness on the part of parents, it is possible that, in many cases, the parents did not know that they were actually leaving deadly poisons where children would have access to them. More conspicuous labels on containers would thus have averted some of these deaths.—*Statistical Bulletin, Metropolitan Life Insurance Company*, February 1931.